

## PATENT COOPERATION TREATY

## PCT

INTERNATIONAL SEARCH REPORT  
(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 226WO	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below
International application No. <b>PCT/CA2004/001459</b>	International filing date ( <i>day/month/year</i> ) 12 August 2004 (12-08-2004)	Priority date ( <i>day/month/year</i> ) 14 August 2003 (14-08-2003)
Applicant SOMA NETWORKS, INC. ET AL		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (see Box No. II).

3. ☒ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows :

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

- a. the figure of the drawings to be published with the abstract is Figure No. 7

☒ as suggested by the applicant.

☐ as selected by this authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

**Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of the first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons :

1. ☐ Claim Nos. :

because they relate to subject matter not required to be searched by this Authority, namely :

2. ☐ Claim Nos. :

because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically :

3. ☐ Claim Nos. :

because they are dependant claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows :

All claims define the features of determining a block format comprising the steps of measuring a reception quality of data blocks transmitted over a channel, and based on the reception measurements, determining a suitable block format. However, this matter is generally known in the prior art. The distinguishing features of the claims therefore are reduced to:

Claims 1-9, 11-18, and 25-40: defining the feature of using at least an average of a portion of the series of reception measurements to determine the block format, with or without the feature of quantization mapping of the measurements; and

Claims 10 and 19-24, defining only the distinguishing feature of mapping the reception quality measurements to a set of transmit control bits using a quantization mapping.

As there is no common inventive matter found in all claims, there can be seen to be no unity of invention.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☒ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claim Nos. :
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claim Nos. :

**Remark on Protest** ☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/CA2004/001459

## A. CLASSIFICATION OF SUBJECT MATTER

IPC<sup>7</sup>: H04Q-7/36, H04Q-7/34, H04B-7/005, H04L-1/20, H04L-27/32, H04M-11/06

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC<sup>7</sup>: H04Q, H04L, H04M, H04B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic database(s) consulted during the international search (name of database(s) and, where practicable, search terms used)

Delphion, Canadian database, Esp@cnet, IEEEExplore, internet search: adaptive, link, coding, reception, quality, fading, channel, wireless, measurement, average, quantization, transmit control bits, and equivalent terms

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No(s).
X Y	US5764699 9 June 1998 (09-06-1998) Needham et al. *whole document	11, 15, 25 1-10, 12-14, 16-24, 26-40
Y	EP0964540 A2 15 December 1999 (15-12-1999) Anandakumar et al. *abstract *paragraphs [0011], [0015], [0017], [0023]	10, 12, 19, 22, 28, 34, 40
A	US6215827 10 April 2001 (10-04-2001) Balachandran et al. abstract *col 7 lines 54-65 *col 15 lines 29-64	1-40
A	US2003/0126536 A1 3 July 2003 (03-07-2003) Gollamudi et al. *whole document	1-40

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

\* Special categories of cited documents :  
 "A" document defining the general state of the art which is not considered to be of particular relevance  
 "E" earlier application or patent but published on or after the international filing date  
 "L" document which may throw doubt on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)  
 "O" document referring to an oral disclosure, use, exhibition or other means  
 "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention  
 "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone  
 "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art  
 "&" document member of the same patent family

Date of the actual completion of the international search

21 March 2005 (21-03-2005)

Date of mailing of the international search report

07 April 2005 (07-04-2005)

Name and mailing address of the ISA/CA  
 Canadian Intellectual Property Office  
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 Gatineau, Quebec K1A 0C9

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**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

PCT/CA2004/001459

Patent Document Cited in Search Report	Publication Date	Patent Family Member(s)	Publication Date
US5764699	09-06-1998	none	
EP0964540	15-12-1999	US6421527 B1	16-07-2002
US6215827	10-04-2001	AU2121799 A	30-09-1999
		BR9915302 A	24-07-2001
		CA2244428 A1	24-02-1999
		CA2263060 A1	19-09-1999
		CN1154391C C	16-06-2004
		EP0899906 A2	03-03-1999
		EP0944201 A2	22-09-1999
		JP3441379B2	02-09-2003
		JP11313040 A	09-11-1999
		US6108374 A	22-08-2000
US2003126536	03-07-2003	none	